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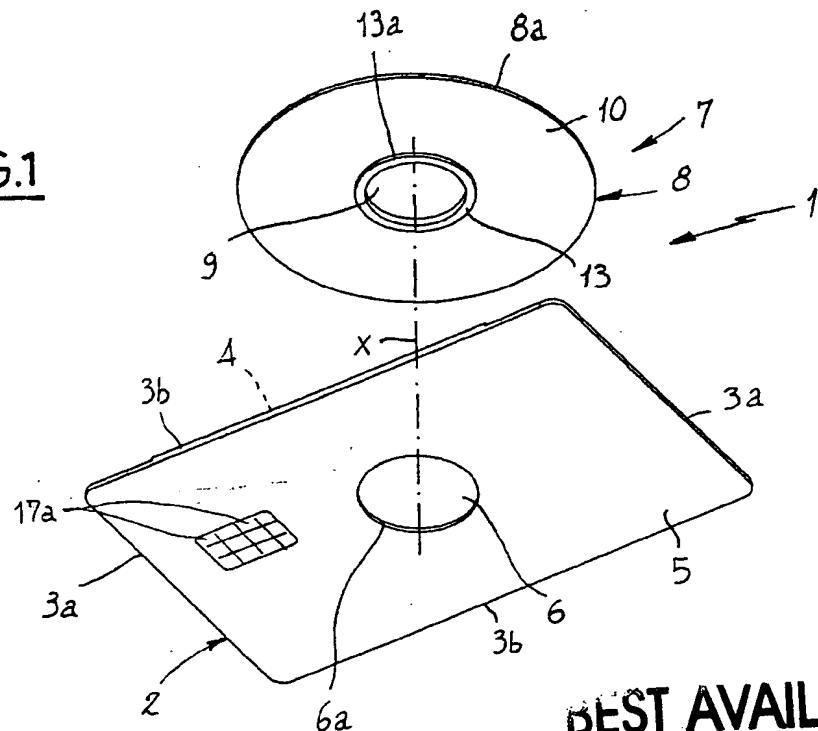
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(54) Support card for data storage unit

(57) A support card for digital memories comprises a flat support (2) of standardized rectangular conformation, having a first face (4) and a second face (5) and being provided with a centrally-disposed through opening (6). Formed in the first face (4) is a surface recess

(11) for receiving a DVD disc-half constituting a first storage unit (7). A steady engagement of the first storage unit (7) on the flat support (2) is achieved by a collar (13) disposed close to a centering through hole (8) presented by the storage unit (7) and intended for coupling, by forced fitting, with the through opening (6).

FIG.1



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EP 1 083 563 A1

shaped type, i.e. it comprises a plate-like body 8 having a centering through hole 9 and at least one area 10 for data storage, preferably of the optical type, such disposed as to form an annulus extending concentric with the centering through hole 9 and substantially tangent to the major sides 3b of the flat support 2.

[0016] In particular, it is preferably provided for the first storage unit 7, or at least the plate-like body 8 thereof, to be essentially defined by a DVD (digital versatile disc) disc-half the outer diameter of which substantially corresponds to the size of the minor sides 3a of the flat support 2. To the ends of the present description, by "disc-half" it is intended one of the two disc-shaped elements that are usually coupled in mutual superposition relationship when DVDs following conventional techniques are made. In this connection please see document EP 866450 for further explanations and information on how DVDs are made.

[0017] The plate-like body 8 preferably has a circular conformation, delimited by an outer circumferential edge 8a, but the plate-like body may also have a different conformation, a quadrangular conformation for example, provided it is contained within the extension of the perimetral edge 3a, 3b of the flat support 2.

[0018] Disposed on the first face 4 of the flat support 2, at the through opening 6, is means for engagement of the first storage unit 7, preferably comprising a surface recess 11 formed on the first face itself. The surface recess 11 is able to house the first storage unit 7 when the latter, through a locating surface 7a thereof, is brought in abutment on the surface recess itself.

[0019] Preferably, the shape of the surface recess 11 matches that of the first storage unit 7 and its depth corresponds to the thickness of said storage unit. In this way the first storage unit 7, when housed in the surface recess 11, has a reading surface 7b disposed flush with the first face 4 of the flat support 2.

[0020] In particular, in the embodiment shown, the surface recess 11 has a circular conformation and is delimited by a circumferential ridge 12 substantially tangent to the major sides 3b of the flat support 2.

[0021] Advantageously, engagement of the first storage unit 7 with the flat support 2 further involves the aid of mechanical-interfacing means comprising a fitting element for example, for engagement between the storage unit itself and the support card 1, preferably in a removable manner.

[0022] This mechanical-interfacing means preferably comprises a collar 13 axially projecting from the locating surface 7a at the centering through hole 9 having an inner diameter corresponding to that of the centering hole usually provided in a conventional compact disc or DVD. Collar 13 defines a shoulder 13a facing away from the geometric axis of the through hole. Shoulder 13a is able to cooperate with an inner circumferential edge 6a of the through opening 6 to accomplish a tight mechanical-interference fit with said opening.

[0023] In a preferential embodiment shown in Fig. 7,

shoulder 13a of collar 13 has a substantially cylindrical conformation in the same manner as the inner circumferential edge 6a of the through opening 6. The outer diameter of collar 13 is slightly greater than the inner diameter of opening 6, so as to carry out a tight interference fit of the collar into the opening.

[0024] In accordance with an alternative embodiment shown in Fig. 8, it may be advantageously provided that shoulder 13a defined by collar 13 and/or the inner circumferential edge 6a of the through opening 6 should be of truncated conical form. In this manner shoulder 13a defines an undercut turned towards the flat body 8, whereas the inner circumferential edge 6a defines an undercut turned towards the second face 5 of the flat support 2. Due to the presence of these undercuts a mechanical-interference snap fitting of collar 13 in opening 6 occurs.

[0025] To make snap-fitting easier, radial cuts may be advantageously arranged at collar 13 and/or opening 6, which cuts divide the collar itself and/or the inner circumferential edge 6a into a plurality of elastically-deformable portions in the form of an arc of a circle.

[0026] In a different embodiment, shown in Figs. 4, 5, 9 and 10, instead of collar 13 associated with the first memory unit 7 at least one grip lug 14 formed at the inner circumferential edge 6a of said through opening 6 is provided to be arranged. The grip lug 14, preferably having an annular conformation concentric with the through opening 6, defines a coupling ridge 14a facing away from the geometric axis X of the through opening 6, to engage, by interference fit, the centering hole 9 arranged in the first storage unit 7. In this embodiment, the through opening 6 will have the same inner diameter as the centering hole usually provided in compact discs or DVDs, whereas the centering hole 9 arranged in the first storage unit 7 will have a conveniently bigger diameter.

[0027] In this case too, both the grip lug 14 and the centering hole 9 may have a cylindrical configuration, with diameters slightly differentiated from each other to cause mutual coupling by forced fitting (Fig. 9). Alternatively, the grip lug 14 and/or centering hole 9 may be of truncated conical form as shown in Fig. 10, so as to define mutually opposite undercuts turned towards the second face 5 of the flat support 2 and the reading surface 7b of the first storage unit 7, respectively.

[0028] In addition to, or in place of collar 13 and/or the grip lug 14, the outer circumferential edge 8a of the plate-like body 8 and the circumferential ridge 12 of the surface recess 11 could be such arranged that mutual engagement by mechanical-interference fit will occur. Said outer circumferential edge 8a and circumferential ridge 12 may have a cylindrical configuration, with differentiated diameters to obtain forced coupling of the plate-like body 8 into the surface recess 11. Alternatively, the outer circumferential edge 8a and/or circumferential ridge 12 may have, at least as regards part of their circumferential extension, a frusto-conical conforma-

CLAIMS

ridge (14a) facing away from a geometric axis (X) of said through opening (6) to get engaged by interference fit in a centering hole (9) provided in said data storage unit (7).

10. A support card as claimed in claim 9, wherein said grip lug (14) has an annular conformation concentric with said through opening (6).

11. A support card as claimed in claim 9, wherein said coupling ridge (14a) forms an undercut turned towards the second face (5) of the flat support (2).

12. A support card as claimed in claim 1, further comprising another data storage unit (17) accessible from said second face of the flat support (2).

13. A support card as claimed in claim 12, wherein said further storage unit (17) is made in the form of a microchip incorporated in the flat support (2) and having contact elements (17a) appearing on said second face (5).

14. A support card as claimed in claim 1, wherein said through opening (6) is disposed concentric with the perimetral edge (3a, 3b) of the flat support (2).

15. A support card as claimed in claim 1, further comprising means for centering the flat support (2) in a reading device of said storage unit.

16. A support card as claimed in claim 15, wherein said centering means comprises centering shoulders defined by auxiliary surface recesses present in said first face (4) close to the minor sides (3a) of said perimetral edge of rectangular profile (3a, 3b).

17. A support card as claimed in claim 1, wherein said storage unit (7) comprises:

- a plate-like body (8) having a centering through hole (9);
- at least one region (10) intended for data storage and extending concentric with said centering through hole (9);
- mechanical-interfacing means (13) for engagement of said storage unit (7) on a support card (1).

18. A support card as claimed in claim 17, wherein said mechanical-interfacing means comprises at least one tight fitting element (13).

19. A support card as claimed in claim 17, wherein said mechanical-interfacing means comprises a collar (13) axially projecting at said centering through hole (9) and defining a shoulder (13a) facing away from a geometric axis of the through hole (9) and ar-
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ranged to get engaged by interference fit in said through opening (6).

20. A support card as claimed in claim 19, wherein said shoulder (13a) defines an undercut turned towards the plate-like body (8).

21. A support card as claimed in claim 17, wherein said mechanical-interfacing means comprises an edge of said centering through hole (9) arranged to engage by interference fit a grip lug (14) being part of said engagement means disposed on said first face (4) of the flat support (2).

22. A support card as claimed in claim 21, wherein the edge of said through hole (9) forms an undercut turned towards a reading face (7b) of said storage unit (7).

23. A support card as claimed in claim 17, wherein said mechanical-interfacing means comprises an outer circumferential edge (8a) of said plate-like body (8), arranged to engage by mechanical-interference fit with a circumferential ridge (12) presented by said flat support (2).

24. A support card as claimed in claim 23, wherein said outer circumferential edge (8a) defines an undercut turned towards a reading face (7b) of said plate-like body (8).

25. A support card as claimed in claim 17, wherein said plate-like body (8) is essentially defined by a DVD disc-half.

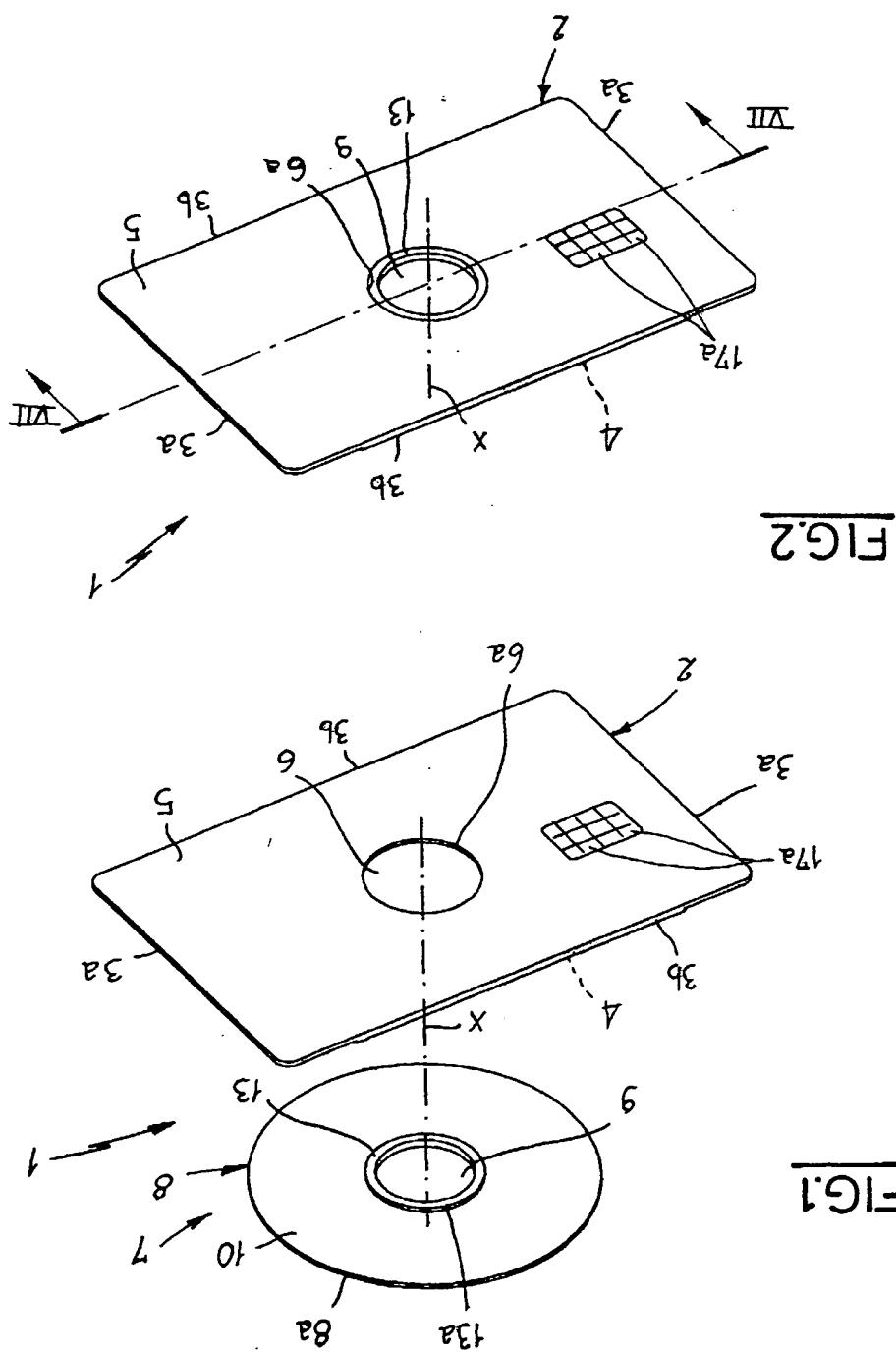


FIG 4

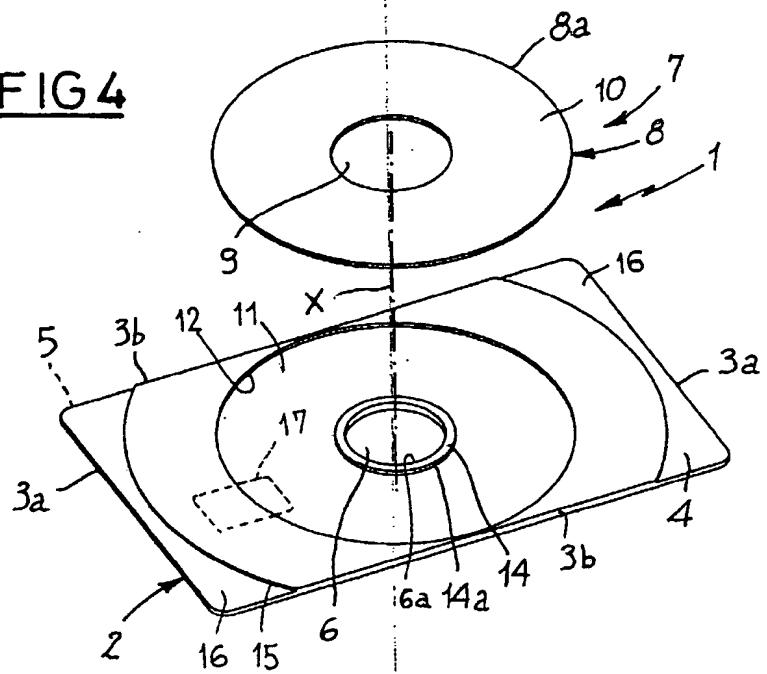
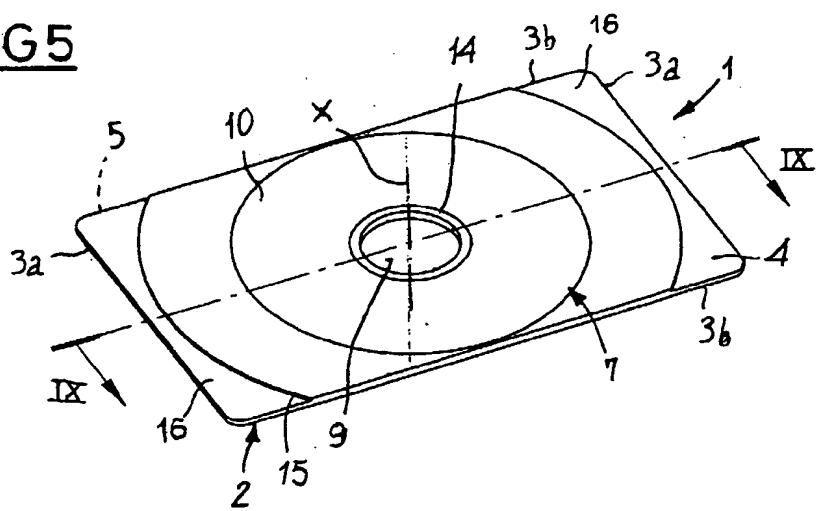
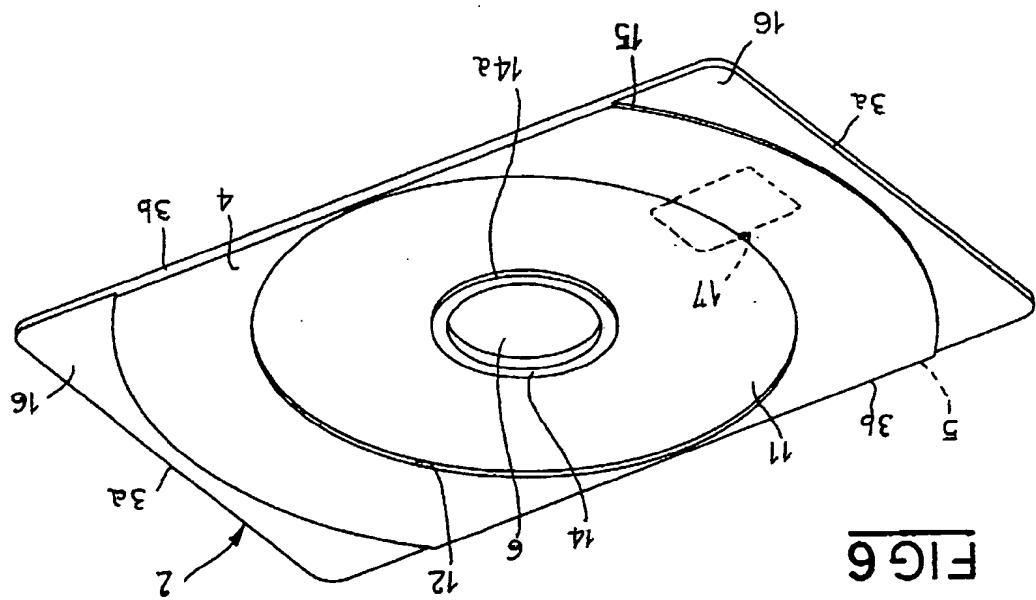
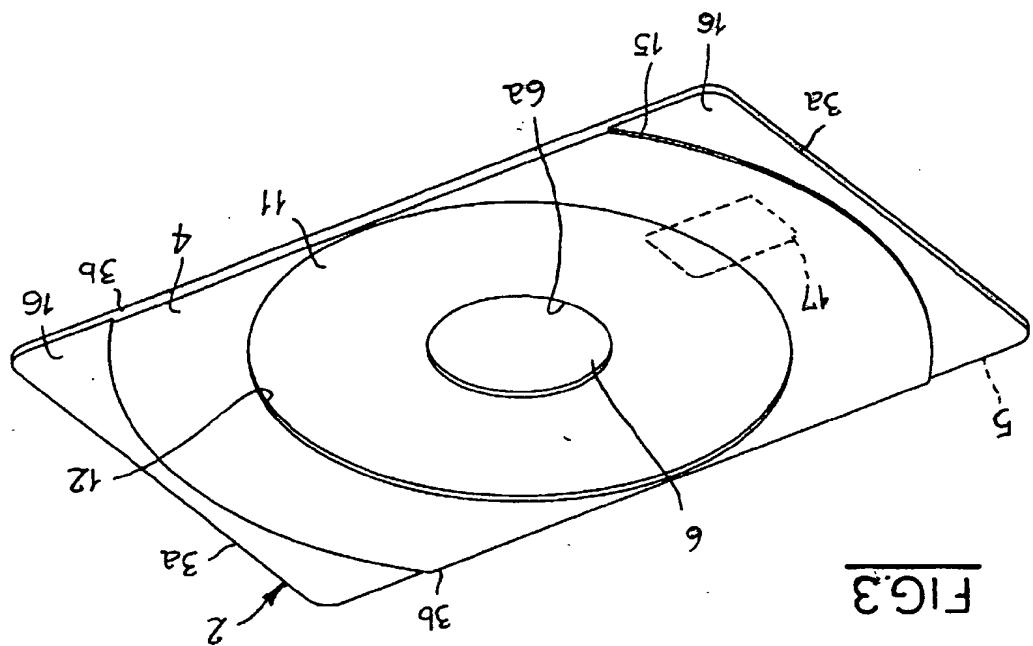
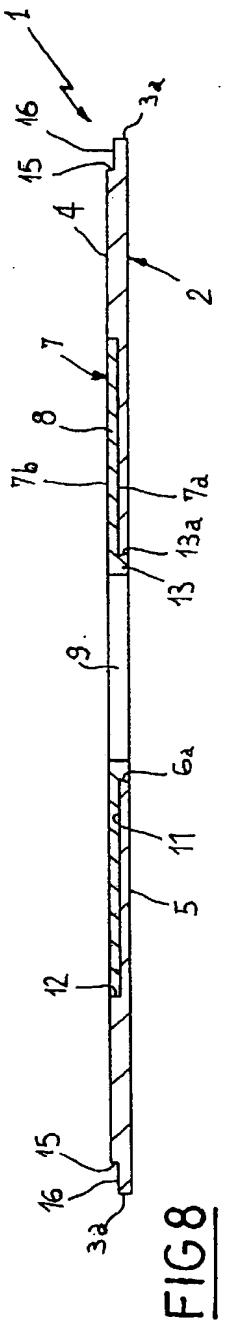
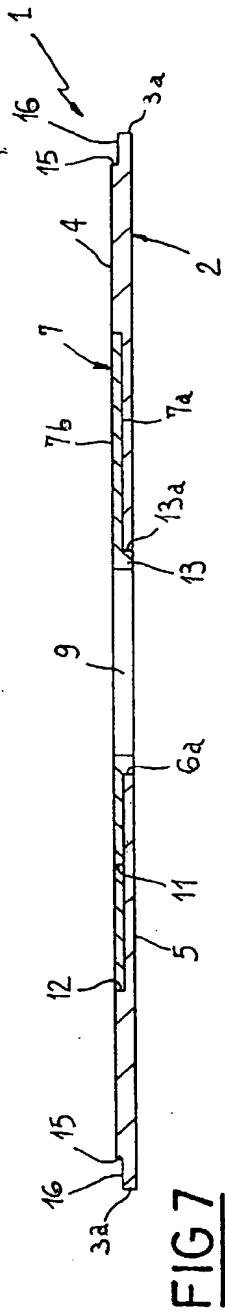
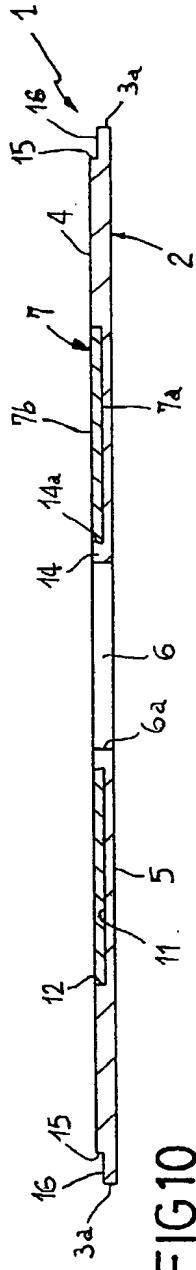
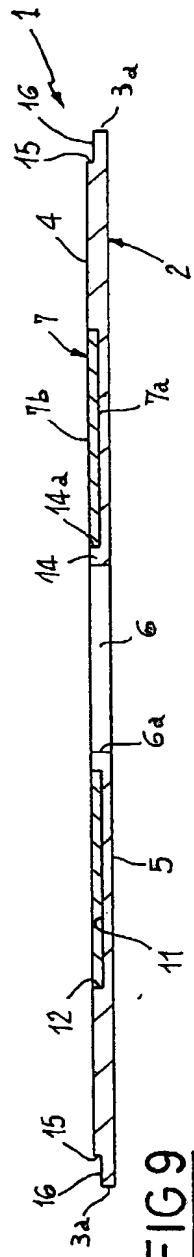


FIG 5









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EUROPEAN SEARCH REPORT

Application Number
EP 99 83 0572

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The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
BERLIN	13 January 2000	Bernas, Y	
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